

To secure network group cables with tie-wraps, follow these instructions:

- 1 Tie-wrap to the Core 0 strain relief bracket, all Core 0 CNI to 3PE cables and Core 1 CNI to 3PE cables for groups 0 and 1. The strain relief bracket is located at the bottom of the right-hand-side I/O panel of the Core 0 Module, as viewed from the rear of the module.
- 2 Tie-wrap to the Core 1 strain relief bracket, Core 1 CNI to 3PE cables for network groups 2, 3, and 4. The strain relief bracket is located at the bottom of the right-hand-side I/O panel of the Core 1 Module, as viewed from the rear of the module.

System option 81C

Option 81C is a dual CPU system with standby processing capabilities, fully redundant memory, and up to five full network groups. Option 81C is equipped with two redundant disk drive units.

The following modules are required:

- two Core/Net Modules (houses CPU and one network group)
- one InterGroup Module
- a minimum of two Network Modules (provides one additional network group)
- a minimum of one IPE Module

Additional Network and IPE Modules are required for additional network groups. PE Modules, RPE Modules, and application modules can also be used.

Note: The terminating plugs in the InterGroup Module for unused connectors are pre-installed in the factory. These should be removed only when additional groups are installed. Remove a plug just before the connector is installed for a new group and installed a plug immediately after a cable is disconnected when a group is removed.

Figure 94 shows a typical configuration for five full network groups. Additional columns can be added, and there can be more than one row of columns.

Cable installation guidelines

Core/Net Module backplanes, like all circuit boards, have a primary side and a secondary side. The primary side, which faces the front of the module, contains the primary shrouds, which provide mechanical guidance for the pins of the card edge connectors. The secondary side of the backplane, which faces the rear of the module, contains the secondary shrouds, which provide mechanical guidance for cable connectors.

The columns of secondary backplane shrouds are designated 18 through 12 from left to right (facing the rear of the backplane). This numbering matches the card slots in the front of the module. The connector rows of secondary backplane shrouds are designated A through F from top to bottom.

Before you connect cables to the backplane, visually inspect the backplane shroud connectors to make sure there are no bent pins. To connect cables:

- 1 Orient the cable connector so that the cable runs downwards.
- 2 Partially insert the cable connector so its guides mate to the corresponding backplane connector.
- 3 Apply a small amount of pressure to push the cable connector straight into the backplane connector. You will feel a detent click when the connector seats.

CAUTION

Pins may be bent or broken if you try to insert the cable connector at an angle. Do not push the connector in any further after you hear the detent click.

Using the extraction tool

To disconnect a cable from the Core/Net Module backplane, use the P0741489 Extraction Tool provided in the rear of the module (behind the I/O safety panel).

CAUTION

You must use the P0741489 Extraction Tool to disconnect cables from the backplane shrouds in NT5D21 Core/Net Modules.

Follow the procedure below to avoid bending or breaking pins when removing cable connectors from the backplane shrouds. Do not insert the extraction tool unless the cable connector is locked into the shroud. Do not force the extraction tool deeper than the detent on the cable connector.

- 1 Grasp the cable connector by the strain relief tab.
- 2 Center the longer flat edge on the angled end of the tool between the cable connector and the wall of the shroud on the right side of the cable connector.

Note: If the straight end of the tool is notched, use that end if the connector can be accessed straight-on. If you must angle the tool at all, use the angled end.
- 3 *Gently* insert the extraction tool and gradually apply pressure while gently rocking the cable connector up and down.
- 4 Stop applying pressure as soon as the detent of the cable connector comes loose from the shroud.
- 5 Slowly remove the extraction tool and the cable connector.

Cable installation procedures

A label kit is included in all option 81C packages. The kit is included in all packages because the preprinted labels may be useful (such as for labeling CNI to 3PE cables). Use of the labels is optional.

- 1 At the rear of the module, remove the left I/O panels. Verify that the following cables are installed in both Core/Net Modules (see [Figure 95](#)):
 - An NT7D89 RS-232 cable (CP to I/O panel) should be connected to backplane connector position 15D and to ports J21 and J25 on the I/O panel. Check the labeling on the cables to identify the J21 and J25 connectors.
 - An NT7D90 Ethernet cable should be connected to backplane connector position 17F and to port J28 on the I/O panel.
 - NTND14 CNI to 3PE Cables should be connected to the appropriate backplane connector positions for all network groups ([Table 21](#)). The cables should be secured to the cable restraint bracket behind the right (facing the rear) I/O panel.

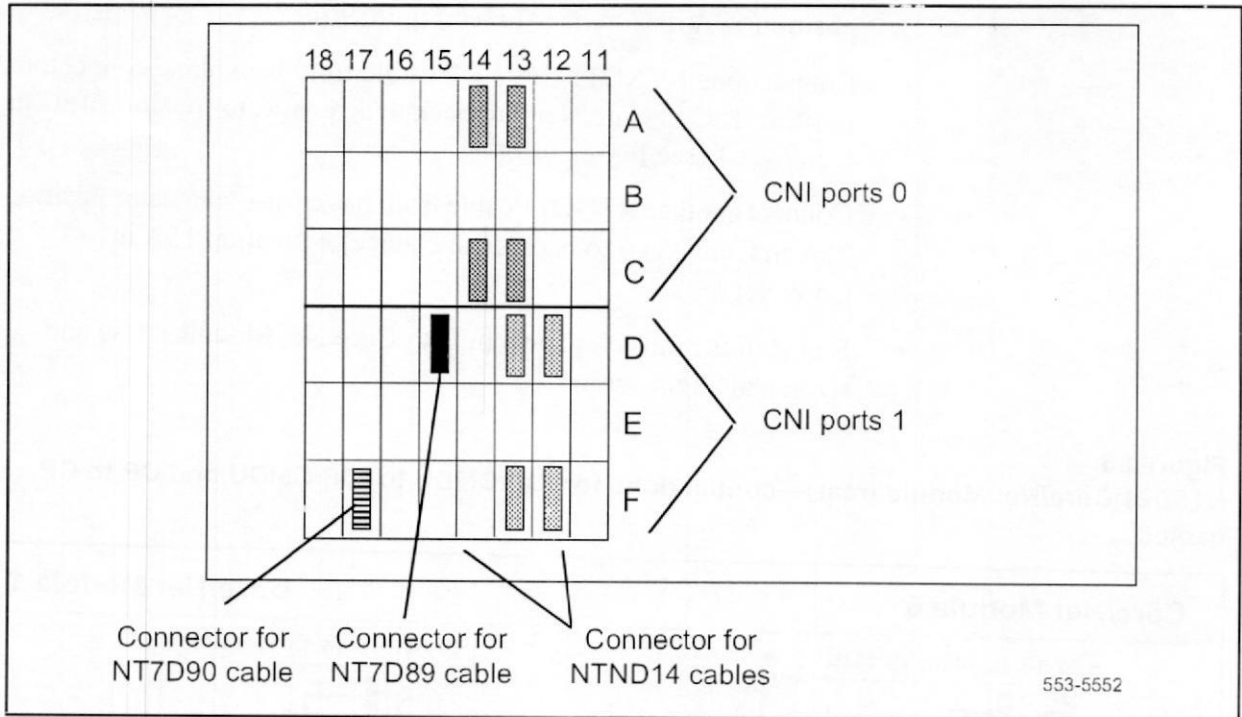
Table 21
CNI backplane connector positions—NTND14 cables

Backplane connection	Group
12D	1
12F	1
13A	2
13C	2
13D	3
13F	3
14A	4
14C	4

Note: Backplane shroud designations are 18 through 12 from left to right and A through F from top to bottom.

- 2 On the faceplates of the 3PE cards in the Core/Net Modules
 - connect an NT8D80BZ cable from J4 in Core/Net 0 to J4 in Core/Net 1
 - connect another NT8D80BZ cable from J3 in Core/Net 0 to J3 in Core/Net 1.

Figure 95
NT5D21 Core/Net Module (rear)—preinstalled backplane connections



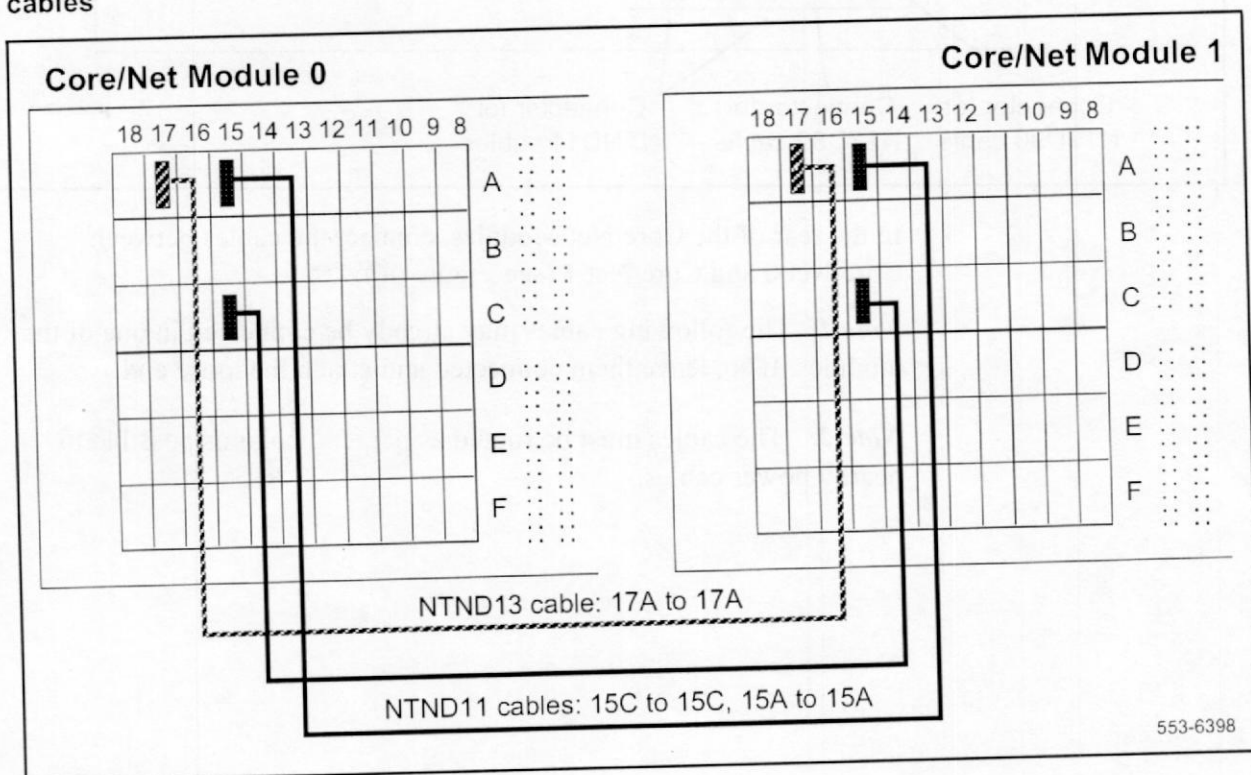
- 3 In the rear of the Core/Net Modules, connect the cables between Core/Net 0 and Core/Net 1 (see [Figure 96](#)):

Note 1: The following cables may already be connected in one of the modules. If so, leave them connected and attach the loose end.

Note 2: The cables must be routed as perpendicular as possible to nearby power cables.

- Connect the NTND13 IOP to IOP SCSI Cable from backplane connector position 17A in Core/Net 0 to backplane connector position 17A in Core/Net 1 (see Figure 96).
- Connect one NTND11 CP to CP Cable from backplane connector position 15C in Core/Net 0 to backplane connector position 15C in Core/Net 1 (see Figure 96).
- Connect another NTND11 cable from backplane connector position 15A in Core/Net 0 to backplane connector position 15A in Core/Net 1.
- Reinstall the left I/O panels in both Core/Net Modules. Use and tighten all eight screws.

Figure 96
NT5D21 Core/Net Module (rear)—connections for IOP/CMDU to IOP/CMDU and CP to CP cables



- 4 Connect the clock controller cards in Network Modules to the junctor board in the InterGroup Module (see [Figure 97](#)). Route the cables as shown in [Figure 98](#).
 - Connect an NT8D74 (AE or AF length as needed) from the faceplate connector on the clock controller card in Network group 1, side 0 to connector SCG 0 (J11) in the InterGroup Module.
 - Connect an NT8D74 (AE or AF length as needed) from the faceplate connector on the clock controller card in Network group 1, side 1 to connector SCG 1 (J12) in the InterGroup Module.

For each additional network group:

- Connect an NT8D74 (AE or AF length as needed) from the faceplate connector on the clock controller card in Network group 2 (and each additional group), side 1 to connector SCG 1 (J12) in the InterGroup Module.
- 5 If PRI/DTI cards are equipped in the Core/Net Modules, connect the faceplate cables.

Note: For detailed instructions on PRI/DTI connections, see *ISDN Primary Rate Interface installation* (553 2901-200).

- Connect a QCAD133 cable from connector J4 on the card to the I/O panel.
- Connect an NT8D85 cable from connector J3 on the card to the selected QPC414 Network Card.
- If needed, connect two NT8D79 cables from connectors J1 and J2 on the card to the respective clock controller cards.

Note: Step 6 does not apply to the QPC441 3PE card in the Core/Net Module.

Figure 97
NT8D35 Network Module (front)—clock controller card connections

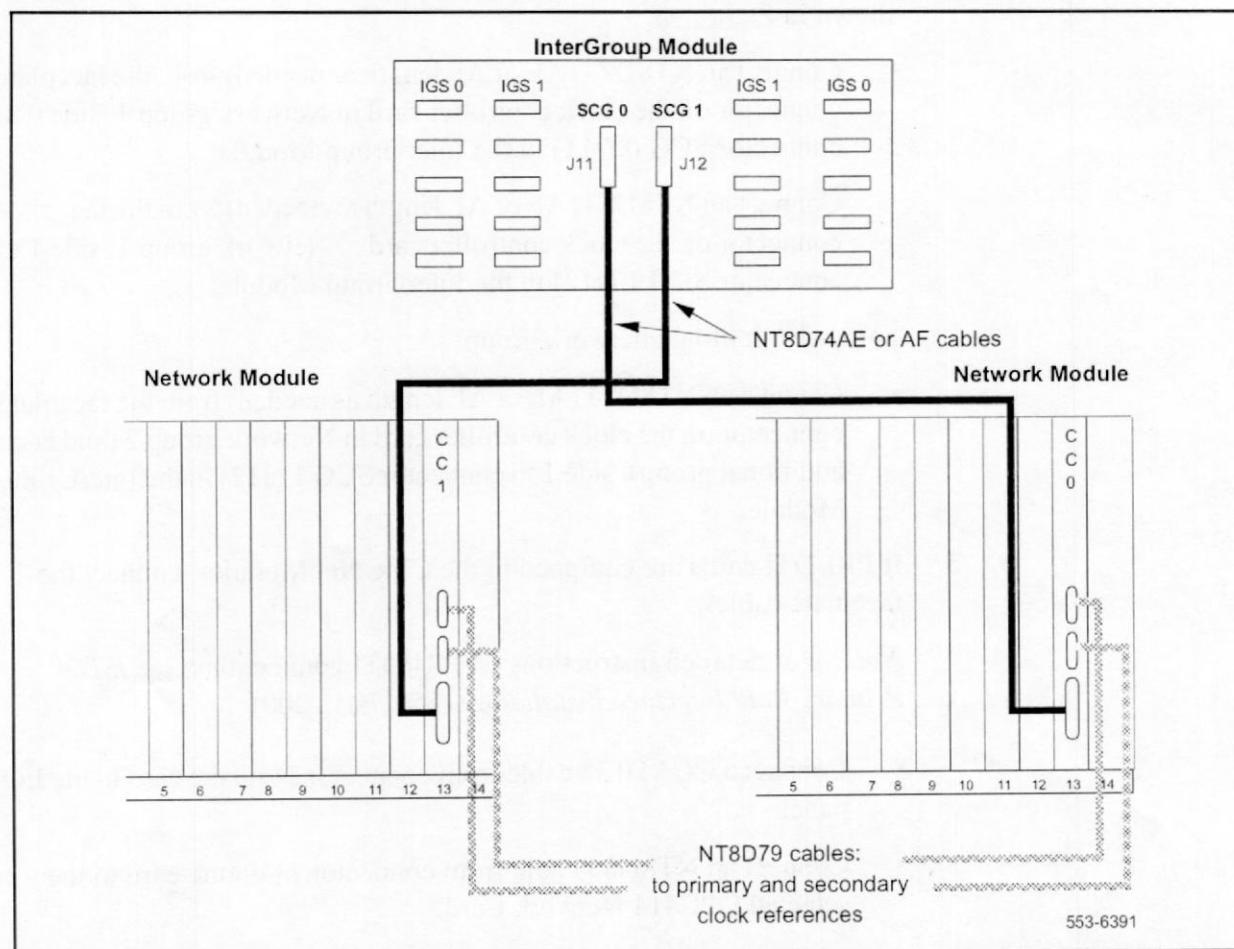
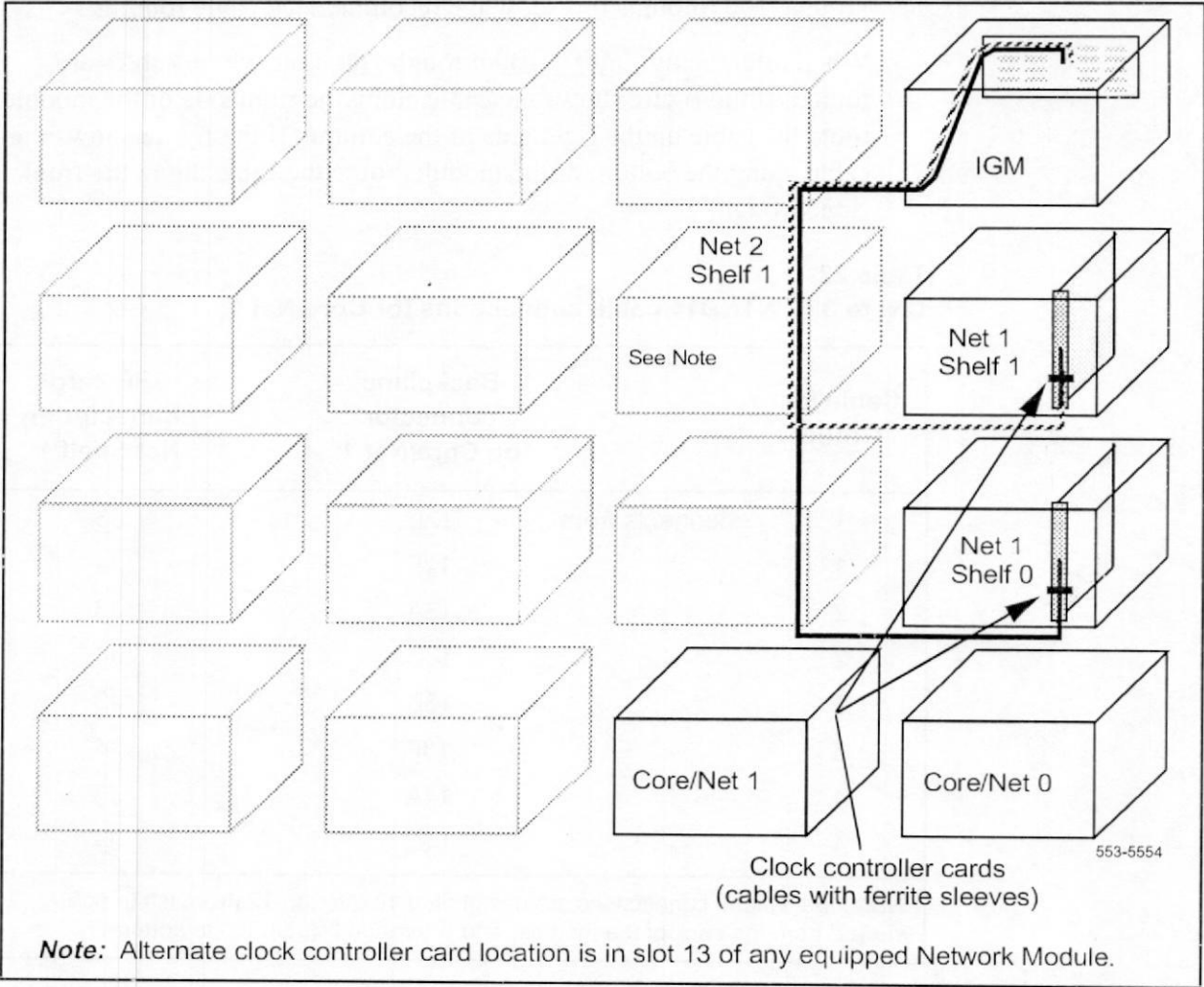


Figure 98
Cable routing from clock controller cards to InterGroup Module



- 6 Connect the NTND14 cable pairs to the QPC441 3PE Cards in the Network Modules. Tables 22 and 23 list the CNI to 3PE connections. Figures 100 through 104 show the recommended cable routing.

When referencing Figures 100 through 104, note where cables are routed. If the figure shows the cable along the right side of the module, route the cable up the right side of the column. If the figure shows the cable along the bottom of the module, route the cable along the front cable trough.

Table 22
CNI to 3PE NTND14 cable connections for Core/Net 1

Cable for Group		Backplane connector on Core/Net 1	3PE card connector on Net Shelf 1
1	connects from	12D	J3
1		12F	J4
2		13A	J3
2		13C	J4
3		13D	J3
3		13F	J4
4		14A	J3
4		14C	J4

Note: Backplane connections are designated 18 through 12 (from left to right viewed from the back of the module) and A through F (from top to bottom).

Table 23
CNI to 3PE NTND14 cable connections for Core/Net 0

Cable for Group	Backplane connector on Core/Net 0	3PE card connector on Net Shelf 0
1	connects from 12D	to J3
1	12F	J4
2	13A	J3
2	13C	J4
3	13D	J3
3	13F	J4
4	14A	J3
4	14C	J4

Note: Backplane connections are designated 18 through 12 (from left to right viewed from the back of the module) and A through F (from top to bottom).

- 7 Install cables between the QPC412 InterGroup Switch (IGS) Cards 0 and 1 for each network group and the junctor board in the InterGroup Module.
 - Connect the faceplate connectors on the IGS cards with NT8D76 cables to the InterGroup Module. [Table 24](#) lists the IGS to InterGroup connections and the slots into which the IGS cards are located on each shelf.
 - [Figure 99](#) shows the IGS connection points in the NT8D36 InterGroup Module.
 - [Figures 100](#) through [104](#) show the recommended cable routing.

EXT 0 x aa bbb

Table 24
IGS to InterGroup cable assignment—use NT8D76 cables

From				To
Network group	Network shelf	Slot	IGS connector J1	InterGroup connector
0	0 (Core/Net 0)	8	0	J1
0	0(Core/Net 0)	9	1	J6
0	1(Core/Net 1)	9	1	J17
0	1(Core/Net 1)	8	0	J22
1	0	3	0	J2
1	0	2	1	J7
1	1	2	1	J16
1	1	3	0	J21
2	0	3	0	J3
2	0	2	1	J8
2	1	2	1	J15
2	1	3	0	J20
3	0	3	0	J4
3	0	2	1	J9
3	1	2	1	J14
3	1	3	0	J19
4	0	3	0	J5
4	0	2	1	J10
4	1	2	1	J13
4	1	3	0	J18

Figure 99
NT8D36 InterGroup Module—connectors for IGS cards

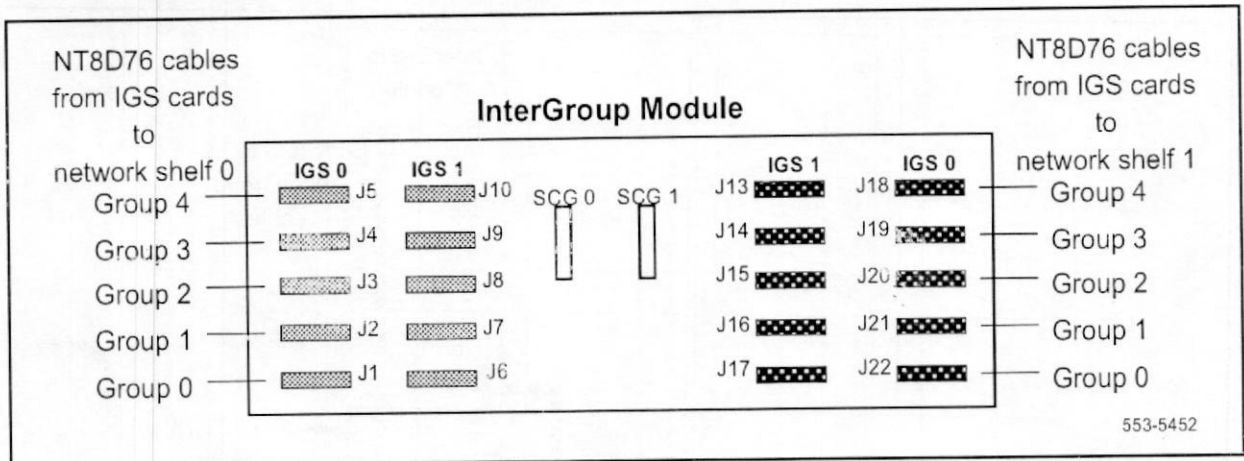


Figure 100
Network Group 0—cable routing to Core/Net and InterGroup Modules

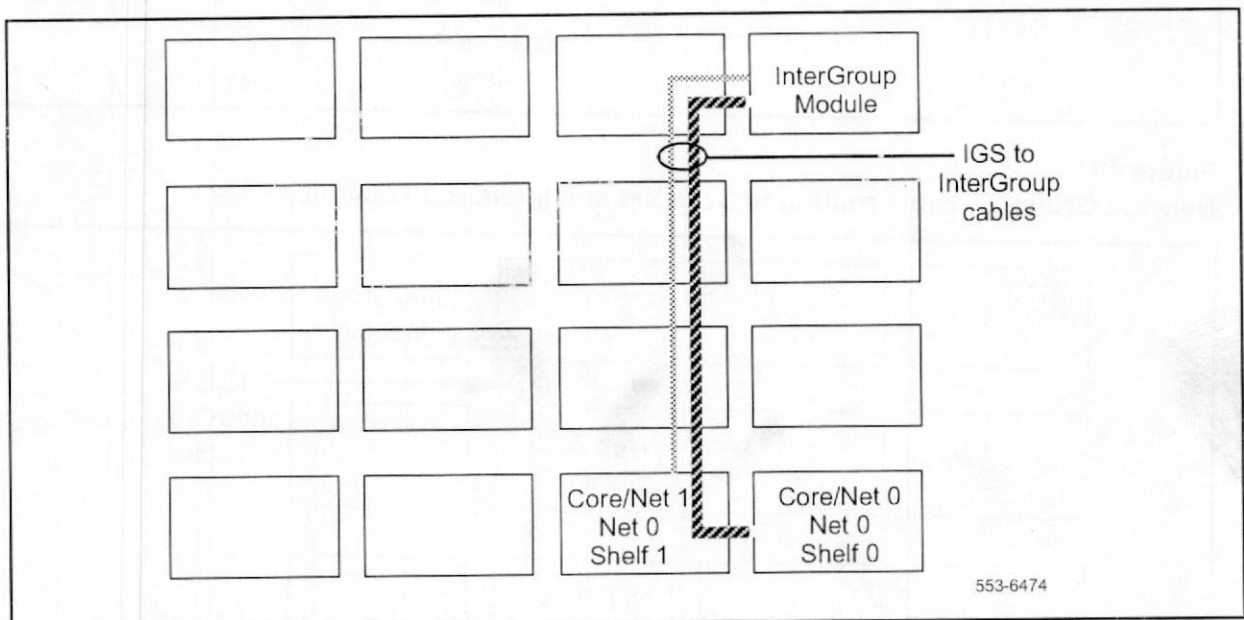


Figure 101

Network Group 1—cable routing to Core/Net and InterGroup Modules

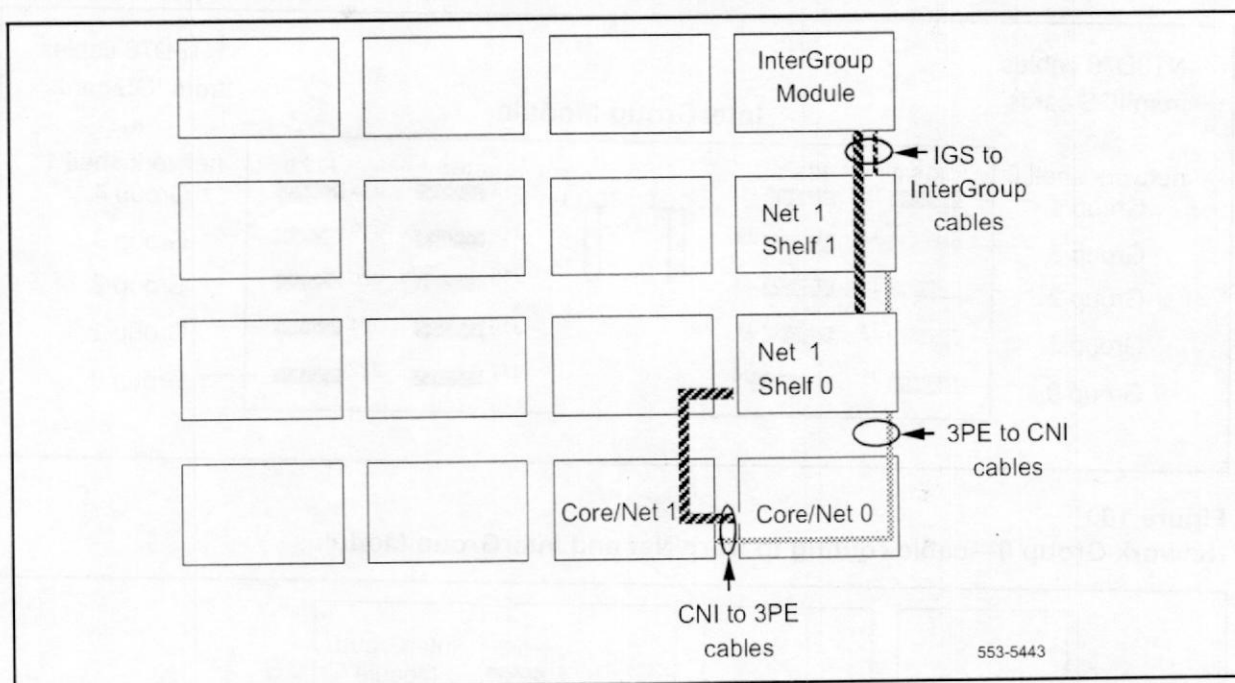


Figure 102

Network Group 2—cable routing to Core/Net and InterGroup Modules

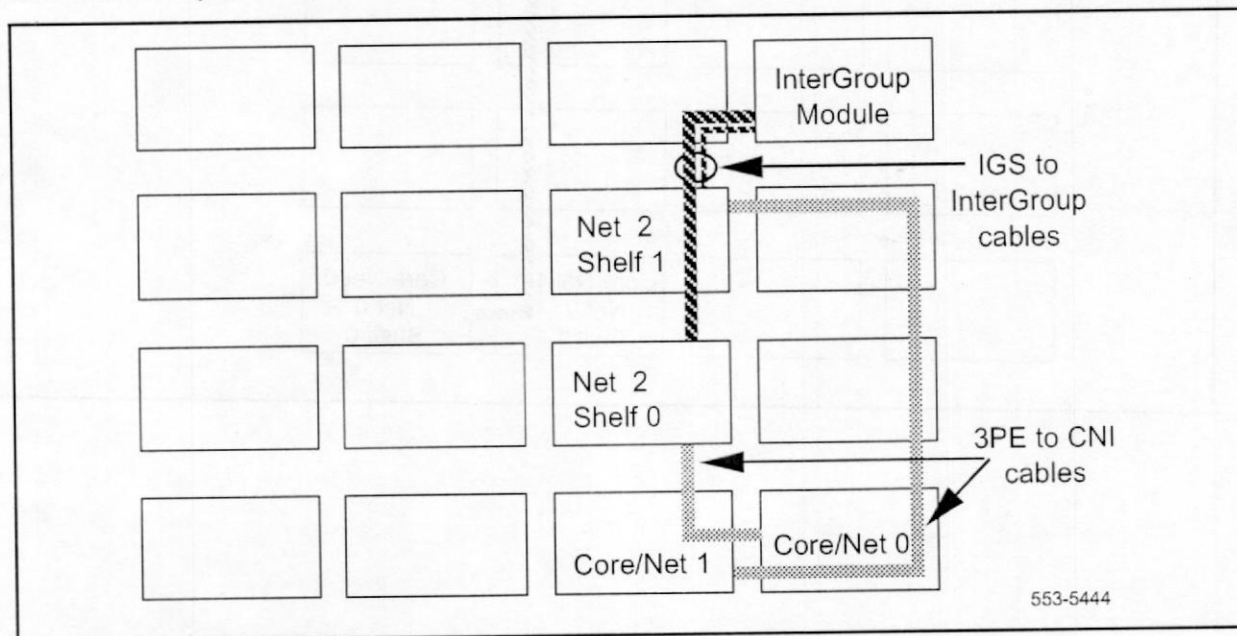


Figure 103

Network Group 3—cable routing to Core/Net and InterGroup Modules

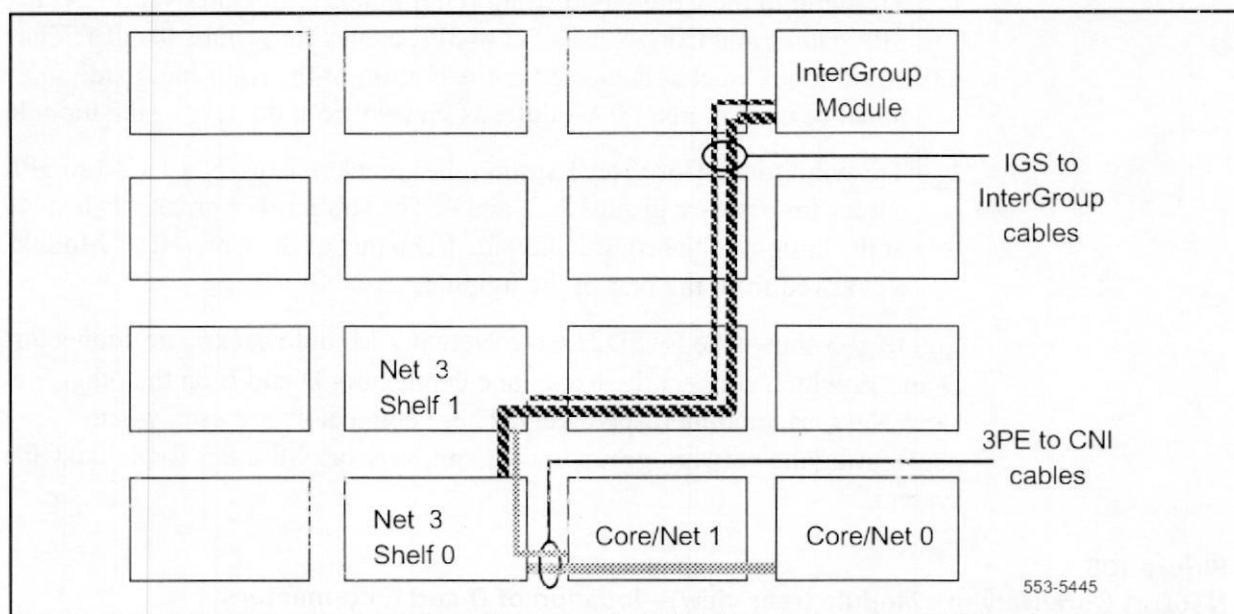
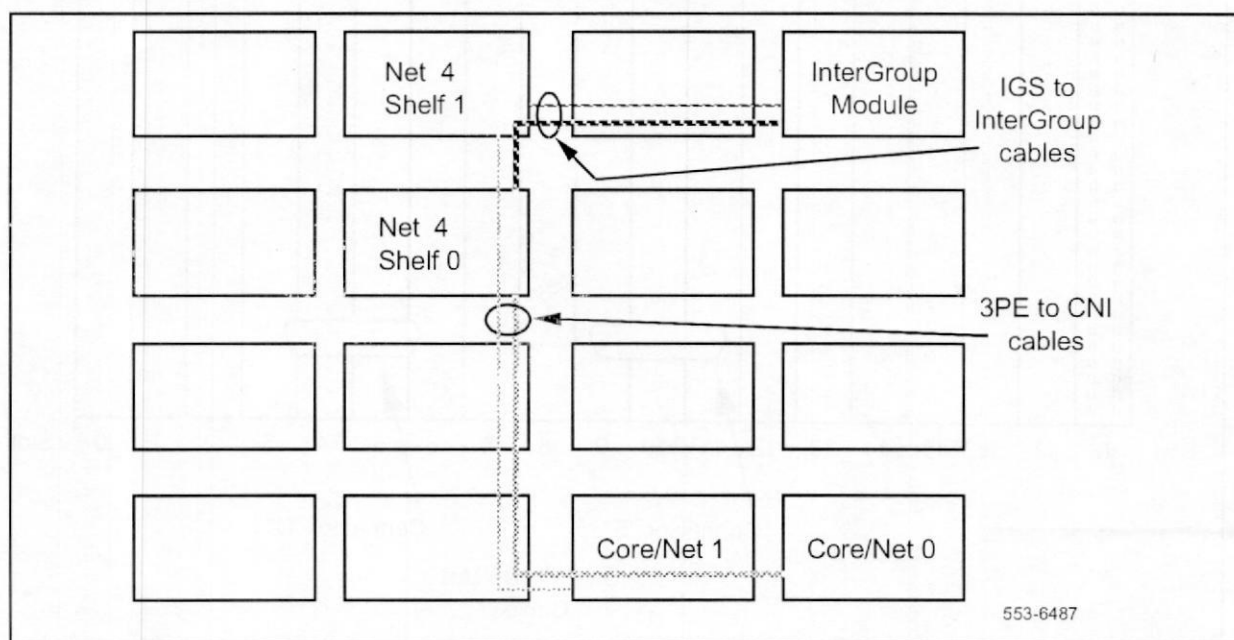


Figure 104

Network Group 4—cable routing to Core/Net and InterGroup Modules



To secure network group cables with tie-wraps, follow these instructions:

- 1 Tie-wrap to the Core/Net 0 strain relief bracket, all Core/Net 0 CNI to 3PE cables and Core/Net 1 CNI to 3PE cables for groups 0 and 1. The strain relief bracket is located at the bottom of the right-hand-side I/O panel of the Core/Net 0 Module, as viewed from the rear of the module.
- 2 Tie-wrap to the Core/Net 1 strain relief bracket, Core/Net 1 CNI to 3PE cables for network groups 2, 3, and 4. The strain relief bracket is located at the bottom of the right-hand-side I/O panel of the Core/Net 1 Module, as viewed from the rear of the module.

Figure 105 shows the NT5D21 Core/Network Module backplane connectors D and E, which connect the backplane connectors D and E on the other Core/Network module respectively. These connectors are used when configuring the network group in the Core/Network Modules for a dual CPU system.

Figure 105
NT5D21 Core/Network Module (rear view)—location of D and E connectors

